

CLASS EXERCISES

For each expression, find the number you would add to make it a perfect square trinomial.

1. $x^2 + 6x + \underline{\quad?}$

2. $x^2 - 10x + \underline{\quad?}$

3. $x^2 + 3x + \underline{\quad?}$

For each equation, find the value of k that would make the left side a perfect square trinomial.

4. $x^2 + kx + 64 = 0$

5. $25x^2 - kx + 1 = 32$

6. $49 - kx + x^2 = 20$

Solve by completing the square.

7. $x^2 + 6x = 10$

8. $x^2 - 10x + 13 = 0$

9. $2x^2 + 6x - 8 = 0$

PRACTICE EXERCISES

Find the number you would add to make each expression a perfect square trinomial.

1. $x^2 - 14x + \underline{\quad?}$

2. $x^2 + 12x + \underline{\quad?}$

3. $y^2 - 9y + \underline{\quad?}$

4. $z^2 + 7z + \underline{\quad?}$

5. $x^2 + \frac{1}{2}x + \underline{\quad?}$

6. $x^2 - \frac{2}{3}x + \underline{\quad?}$

Find the value of k that would make the left side of each equation a perfect square trinomial.

7. $x^2 + kx + 16 = 0$

8. $x^2 - kx + 81 = 0$

9. $x^2 - kx + 25 = 7$

10. $x^2 + kx + 16 = -32$

11. $x^2 + kx + 36 = 10$

12. $x^2 - kx + 64 = 8$

Solve by taking the square root of each side.

13. $(x + 3)^2 = 9$

14. $(x - 6)^2 = 12$

15. $(y - 7)^2 = \frac{25}{4}$

16. $(y + 4)^2 = \frac{16}{9}$

17. $4x^2 + 4x + 1 = 4$

18. $4 - 12y + 9y^2 = 18$

Solve by completing the square. In Exercises 55–60, solve for x in terms of a .

19. $y^2 + 12y + 4 = 0$

20. $x^2 - 8x + 4 = 0$

21. $y^2 + 10y + 6 = 0$

22. $x^2 - 6x + 6 = 0$

23. $r^2 - 12r + 18 = 0$

24. $x^2 - 12x - 25 = 0$

25. $x^2 - 8x = 9$

26. $x^2 + 2x = 15$

27. $x^2 + 2x - 5 = 0$

28. $x^2 - 2x = -10$

29. $x^2 - 2x = -2$

30. $x^2 - 6x + 11 = 0$

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| 31. $2x^2 - 8x - 14 = 0$ | 32. $2x^2 + 8x - 10 = 0$ | 33. $2y^2 - 20y + 24 = 0$ |
| 34. $2y^2 + 12y - 32 = 0$ | 35. $2z^2 + z - 28 = 0$ | 36. $3z^2 - 8z - 27 = 0$ |
| 37. $x^2 - 9x + 25 = 0$ | 38. $t^2 + 11t + 10 = 0$ | 39. $3s^2 + 2s + 18 = 0$ |
| 40. $2x^2 - 6x = 8$ | 41. $4x^2 + 4x = 3$ | 42. $2r^2 + 23r + 26 = 0$ |
| 43. $2y^2 - 5y - 3 = 0$ | 44. $3y^2 + 4y = -8$ | 45. $x^2 + 4 = 0$ |
| 46. $\frac{x^2}{3} + 8x - 3 = 0$ | 47. $\frac{x^2}{2} + 4x = 2$ | 48. $x^2 - \frac{x}{2} = \frac{1}{3}$ |
| 49. $x^2 + \frac{3}{4}x = \frac{1}{2}$ | 50. $9x^2 - 12x + 5 = 0$ | 51. $25x^2 - 20x = -9$ |
| 52. $x^2 + 2\sqrt{2}x = 35$ | 53. $x^2 = 4\sqrt{3}x - 12$ | 54. $3x^2 + x = \frac{2}{3}$ |
| 55. $2x^2 - ax = 6a^2$ | 56. $2a^2x^2 - 8ax = -6$ | |
| 57. $3x^2 + ax = a^2$ | 58. $4a^2x^2 + 8ax + 3 = 0$ | |
| 59. $3x^2 + ax^2 = 9x + 9a$ | 60. $6a^2x^2 - 11ax = 10$ | |